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EXAMINER

WOZNIAK, JAMES S

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2626

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 09/980,275	Applicant(s) SERIZAWA ET AL.	
	Examiner JAMES S. WOZNAK	Art Unit 2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 July 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44, 46-67 and 69-88 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-44, 46-67 and 69-88 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 May 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. In response to the office action from 3/18/2008, the applicant has submitted an amendment, filed 7/18/2008, amending independent claims 2, 4, 6, 35, 37, 39, 57-58, 60, 62, 72-73 while arguing to traverse the art rejection based on the limitation regarding the mixture of a feature parameter received in the past, a weighted sum operation, and smoothed spectral envelope characteristics (*Amendment, Pages 28-30*). Applicant's arguments have been fully considered, however the previous rejection is maintained due to the reasons listed below in the response to arguments.
2. In response to the amended claims and the applicants' associated comments (*Amendment, Pages 22-23*), the examiner has withdrawn the previous objections directed to minor informalities.
3. In response to the amendment to claims 57-58, 60, 62, and 72-73, the examiner notes that the addition of a "computer" processor is in line with the disclosure of the invention and enables the program's practical application functionality. Thus, the previous 35 U.S.C 101 and 35 U.S.C. 112, first paragraph rejection (*i.e., new matter rejection*) have been withdrawn. Furthermore, it worth noting that while the voice terminal, floppy disk, and personal computer all seem to be connected to the program embodiment (*Specification, Pages 27-28*), there is no explicit

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indication in the specification that the "radio terminal" or "base station" is tied into this program-embodiment (*"A decoding device...can be applied to a radio terminal or radio base station"*, *Specification, Page 28*).

4. The applicant has argued that the 35 U.S.C. 112, first paragraph rejection directed towards a single means claim is improper by citing case law that recites that a recited circuit is not means-plus-function language (*Amendment, Pages 24-25*). In response, the examiner points out that it was indicated in the previous Office Action (*from 3/18/2008, Pages 3-4*) that a claim does not have to specifically recite the "means-plus-function" language to be considered as being directed to a single means claim because a single means claim can merely constitute an element "not in combination with another element". Thus, the cited case law only supports the rationale that the claim is not in means-plus-function format, which is not the issue at hand. The issue in the claim is whether or not the claimed "circuit" is in combination with another element. Upon further reconsideration, the examiner notes that in claim 1 the "voice-less decoding circuit" is part of a larger device (*"A speech coding device"*), and thus, constitutes an albeit broad, but claimed combination. Claims 2, 4, 6, and 20-21 similarly recite a "voice-less part decoding unit" that is part of a larger "speech decoding device". It is for this reason that the previous 35 U.S.C. 112, first paragraph rejections will be withdrawn.

5. In response to the previous 35 U.S.C. 112, second paragraph rejection directed to omitted essential elements the applicant argues that in one embodiment of the invention, the "actual parameters received by the device *may* indicate whether the periods they represent contain voice

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or are voice-less” and thus the parameters are only required to be received in order to obtain the voicing information (*Amendment, Pages 27-28*). The examiner respectfully disagrees. A voice-less period determination cannot be achieved by simply receiving the parameters. Even in the case where the determination is based on received parameters, some type of analysis/processing of the received information must be performed to initiate a switch (*for example, “switching device”*) into a voice-less decoding mode. If this analysis is not made, how can the voice-less decoding mode be determined and initiated? Since this basis for the voice-less coding mode is the determination of the voice-less period, the determination *is* an essential step/element. Thus, these arguments have been fully considered, but are not convincing. Furthermore, it is worth noting, in arguendo, that the applicant has argued that a receiving step/means is necessary for performing the voice-less decoding, but this step/element is also not recited in the claimed invention. Thus, the applicant's logic also seems to indicate that there is an essential means/step missing from the claims.

Response to Arguments

6. Applicant's arguments have been fully considered but they are not persuasive for the following reasons:

With respect to **Claims 2, 4, 6, 35, and 39**, the applicants argue that Hayata (*EP 0751490A2*) fails to teach “smoothing a feature parameter by mixing the feature parameter received in the past” because it is alleged that, in Hayata, the smoothed coefficient is independent of that of a prior frame and is based only on each frame and a counter value

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(*Amendment, Page 28*). The applicants' further argue that in their invention smoothing is performed in a time direction by weighted average processing rather than the method/technique employed by Hayata (*Amendment, Pages 28-29*).

In response, the examiner notes that the smoothing technique taught by Hayata does involve a "feature parameter received in the past". More specifically, Hayata gradually mixes in background noise feature parameters with varying strength over time by applying them to a weighting factor. This weighting factor (*i.e., lambda*) varies with time, as pointed out by the applicant, in the form of a frame count (*for all the above- See Col. 8, Line 21-Col. 9, Line 15*). The feature parameters in Hayata do correspond to parameters received in the past because they correspond to parameters that are noted by Hayata as being received "immediately before" a voice-less period (*Col. 7, Line 59- Col. 8, Line 4*). In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (*i.e., weighted average processing*) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). It is also worth noting that performing smoothing through averaging is well known in the art. For example, this feature is taught by the previously noted Swaminathan et al reference (*U.S. Patent: 5,537,509*), Ireton (*U.S. Patent: 5,797,120*) (*provided in the IDS from 5/23/2008- "inter-frame smoothing*), or Ertem et al (*U.S. Patent: 6,453,289*), which also notes that a weighted average of past noise spectra ensures smooth spectral variation of encoded background noise (*Col. 12, Line 66- Col. 13, Line 13*).

The further dependent claims are traversed for reasons similar to Claims 2, 4, 6, 35, and 39 (*Amendment, Page 29*). In regards to such arguments, see the response directed to claims 2, 4, 6, 35, and 39.

With respect to **Claims 20-21**, the applicants argue that Oshikiri et al (*U.S. Patent: 6,202,046*) does not teach “determining a weighting coefficient used in a weighted sum operation... according to at least one feature parameter” (*Amendment, Page 29*). In support of such arguments, the applicants first argue that Oshikiri only discloses using a multiple to combine an excitation signal and a gain value (*Amendment, Page 29*). As explained previously, Oshikiri does teach a weighted sum operation in the form of applying a weighting (*smoothed gain*) to a weighted sum (*excitation signal as a sum of a plurality of signal types that is weighted by a gain*) (*Col. 16, Lines 8-39; Col. 20, Lines 7-52; Col. 37, Lines 6-23; and Fig. 17*). Although the actual calculation performed by the applicants’ invention may actually be different from that performed by the applicants, it is the current broad claim scope which enables the Oshikiri reference to read on the applicants' claimed invention. The applicants continue to secondly argue that Oshikiri does not teach “determining a weighting coefficient...according to at least one feature parameter” because Oshikiri "does not utilize a weighting coefficient" in his decoder process (*Amendment, Page 30*). In response, the examiner notes that Oshikiri determines a weighting coefficient for the weighted sum operation (*described above- smoothed gain*) based on a gain feature parameter corresponding to a received speech signal (*Col. 20, Lines 26-52*). Since the final smoothed gain is determined/calculated based on the received gain feature parameter (*Col. 20, Lines 26-52*), which corresponds to the applicants' generic claimed feature parameter, these arguments have been fully considered, but are not convincing. Again, although the

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applicants' actual calculation may be different from that utilized by Oshikiri the degree of broadness of the claim is such that Oshikiri anticipates the recited subject matter.

The further dependent claims are traversed for reasons similar to Claims 20-21 (*Amendment, Page 30*). In regards to such arguments, see the response directed to claims 20-21.

With respect to **Claims 1, 34, and 57**, the applicants argue that Hayata fails to teach smoothing feature parameters for spectral envelope characteristics because Hayata only produces a smoothed filter coefficient (*Amendment, Page 31*). In response, the examiner notes that Hayata's filter coefficients that undergo smoothing are spectral envelope characteristics because they represent parameters indicative of a spectral envelope and are utilized for reproducing that spectral envelope at a receiver (*Col. 2, Lines 28-36*). Hayata further notes that these smoothed coefficients produce a relatively flat or smoothed spectrum shape or envelope (*Col. 9, Lines 15-24*). Additionally the applicants' own specification supports that filter coefficients correspond to spectral envelope characteristics (*See Page 2- "filter coefficients representing spectral envelope characteristics"*) and teaches that the claimed smoothing operation involves smoothing these filter coefficients (*See Page 18- "Smoothed filter coefficients"*). Thus, these arguments have been fully considered, but are not convincing.

The further dependent claims are traversed for reasons similar to Claims 1, 34, and 57 (*Amendment, Page 31*). In regards to such arguments, see the response directed to claims 1, 34, and 57.

Claim Objections

7. **Claims 2-15, 17-19, 23-25, 29-31, 35-48, 52-54, 75-77, and 80-82** are objected to because of the following informalities:

In claim 2, "the feature parameter received in the past" should be changed to --a past-received feature parameter-- in order to provide proper antecedent basis for this limitation in the claim. Claims 4, 6, 35, 37, 39 contain similar informalities, and thus, should be similarly amended. The further dependent claims of the preceding claims fail to overcome the indicated informalities, and thus, are objected to due to minor informalities by virtue of their dependency.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. **Claim 1-33 and 74-78** are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements in the independent claims are: a means for determining/detecting the presence of a voice-less period because a voice-less period cannot be smoothed/processed unless it has first been identified. The dependent claims fail to overcome the above 112, second paragraph issues, and thus, are also rejected for omitting essential elements.

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10. **Claims 34-44, 46-67, 79-88** are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps.

See MPEP § 2172.01. The omitted steps in the independent claims are: a step for determining/identifying the presence of a voice-less period because a voice-less period cannot be smoothed/processed unless it has first been identified. The dependent claims fail to overcome the above 112, second paragraph issues, and thus, are also rejected for omitting essential steps.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. **Claims 2, 4, 6-7, 11-15, 35, 37, 39-40, 42, 44, 46-48, 74-77, and 80-82**, are rejected under 35 U.S.C. 102(b) as being anticipated by Hayata (*EP 0751490A2*).

With respect to **Claims 2 and 35**, Hayata discloses:

A voice-less part decoding unit which changes, according to an elapsed time from a time point when a transition occurs from the voice period to the voice-less period, a coefficient used to smooth at least one of the feature parameters by mixing the feature parameter received in the past (*gradually mixing in background noise feature parameters with varying strength over time by applying them to a weighting factor based on a frame count, See Col. 8, Line 21-Col. 9, Line 15; and parameters received "immediately before" a voice-less period, Col. 7, Line 59- Col. 8,*

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Line 4), and decodes the speech signal in the voice-less period by smoothing at least one of the feature parameters with the changed coefficient (decoder capable of smoothing a feature parameter in a background noise period and producing synthesized background noise based on a number of counted time frames from a speech-background noise transition, Col. 3, Line 52-Col. 4, Line 26; Col. 5, Lines 26-55; Col. 8, Lines 21-40; and Fig. 1).

With respect to **Claim 4**, Hayata discloses:

A voice-less part decoding unit which changes a value of a coefficient used to smooth at least one of the feature parameters by mixing the feature parameter received in the past *(gradually mixing in background noise feature parameters with varying strength over time by applying them to a weighting factor based on a frame count, See Col. 8, Line 21-Col. 9, Line 15; and parameters received "immediately before" a voice-less period, Col. 7, Line 59- Col. 8, Line 4)* and decodes the speech signal in the voice-less period by smoothing at least one of the feature parameters with the changed value of the coefficient *(decoder capable of smoothing a feature parameter in a background noise period and producing synthesized background noise based on a coefficient that changes with a number of counted time frames, Col. 3, Line 52- Col. 4, Line 26; Col. 5, Lines 26-55; Col. 8, Lines 21-40; and Fig. 1).*

With respect to **Claim 6, 37, and 39**, Hayata discloses:

A voice-less part decoding unit which changes a value of a coefficient used to smooth at least one of the feature parameters by mixing the feature parameter received in the past *(gradually mixing in background noise feature parameters with varying strength over time by applying them to a weighting factor based on a frame count, See Col. 8, Line 21-Col. 9, Line 15; and parameters received "immediately before" a voice-less period, Col. 7, Line 59- Col. 8, Line*

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4) according to information representing whether a new feature parameter is transmitted or not, and decodes the speech signal in the voice-less period by smoothing at least one of the feature parameters with the changed value of the coefficient (*decoder capable of smoothing a feature parameter in a background noise period and producing synthesized background noise based on a coefficient that changes with a number of counted time frames and a code string that identifies whether a feature parameter has been sent, Col. 1, Lines 29-55; Col. 3, Line 52- Col. 4, Line 26; Col. 4, Line 54- Col. 5, Line 20; Col. 5, Lines 26-55; Col. 8, Lines 21-40; Col. 9, Lines 25-35; and Fig. 1).*

With respect to **Claims 7 and 40**, Hayata further discloses:

The voice-less part decoding unit changes, according to an elapsed time from a time point when a transition occurs from the voice period to the voice-less period and to the feature parameters, a value of a coefficient used to smooth at least one of the feature parameters, and decodes the speech signal in the voice-less period by smoothing at least one of the feature parameters with the changed value of the coefficient (*smoothing parameters change in a background noise period based on a number of counted time frames from a speech-background noise transition, Col. 3, Line 52- Col. 4, Line 26; Col. 5, Lines 26-55; Col. 8, Lines 21-40; and Fig. 1).*

Claims 11-12 and 44 contain subject matter similar to claim 6, and thus, are rejected under similar rationale.

With respect to **Claim 13-15 and 47**, Hayata further discloses:

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The voiceless part decoding unit receives information representing whether the feature parameters are sent at a sending location (*code generation at a sending location and received at a receiving location, Col. 1, Lines 29-55; and Col. 4, Line 54- Col. 5, Line 20*).

Claim 42 contains subject matter similar to claim 7, and thus, is rejected under similar rationale.

With respect to **Claim 46 and 48**, Hayata further discloses:

Receiving the information representing whether a new feature is transmitted or not (, *Col. 1, Lines 29-55; and Col. 4, Line 54- Col. 5, Line 20*).

With respect to **Claims 74-77, and 80-82**, Hayata further discloses:

Smoothing in a subsequent period is performed even when a new feature parameter is not received (*smoothing over time as voice inactivity continues, Col. 7, Line 59- Col. 8, Line 4; and Col. 9, Lines 25-35*).

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

14. **Claims 20-21, 26-27, 32-33, 49-50, 55-56, and 72-73** are rejected under 35

U.S.C. 102(e) as being anticipated by Oshikiri et al (*U.S. Patent: 6,202,046*).

With respect to **Claims 20-21, 49-50, and 72-73**, Oshikiri discloses:

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A voice-less part decoding unit which generates signals in the voice-less period by feeding an excitation signal composed of plural types of signal to a synthesis filter in the voice less period (*feature parameters, Col. 10, Lines 7-12; and excitation signals in a background noise period fed to a synthesis filter, Col. 20, Lines 7-52; and Fig. 17, Element 411*), wherein the voice-less part decoding unit comprises a weighting coefficient determining unit which determines a weighting coefficient used in a weighted sum operation of the plurality of types of signals in the voice-less period according to at least one feature parameter (*smoothing gain decoding and modification and weighting of excitation signals in a background noise period, Col. 20, Lines 7-52; and Figs. 17-18, Elements 407-408; and excitation signal generation utilizing an adder, Col. 37, Lines 6-23*), and the excitation signal generated by using the weighting coefficient is fed to the synthesis filter (*Col. 20, Lines 7-52; and Fig. 17*).

Oshikiri further discloses decoding method implementation as a program stored on a computer readable medium (*Col. 37, Line 50- Col. 8, Line 6*).

With respect to **Claims 26-27 and 55-56**, Oshikiri further discloses:

The feature parameters include at least one of a quantity representing spectral envelope of the signals to be decoded and a quantity representing power of the signals to be decoded (*speech feature parameters including power and spectral information, Col. 10, Lines 7-12*).

With respect to **Claims 32-33**, Oshikiri further discloses:

A coding device that determines whether the input signal is in a voice period or in a voice-less period for each frame and encodes the feature parameters of the input signals to output (*encoding means featuring a speech/noise classifier that encodes a classified signal, Col. 19, Lines 29-62*).

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. **Claims 1, 22, 28, 34, 51, 57, 74, 78-79, 83-84, and 88** are rejected under 35 U.S.C.

103(a) as being unpatentable over Oshikiri et al (*U.S. Patent: 6,202,046*) in view of Hayata (*EP 0751490A2*).

With respect to **Claims 1, 34, and 57**, Oshikiri discloses:

A voice-less decoding circuit for decoding the speech signals in said voice-less period by smoothing at least one received parameter related to spectral envelope characteristics, said feature parameter being from the feature parameter being from the feature parameters received in the voice-less period (*smoothing spectral parameters from a classified background noise period at a decoder, Col. 20, Lines 7-52*), and synthesizing said speech signals based on feature parameters for spectral envelope characteristics and said feature parameter for gain (*synthesis filter used to produce a synthesized output based on feature parameters for spectral envelope characteristics and feature parameters for gain, Fig. 17, Elements 409-411*).

Oshikiri further discloses decoding method implementation as a program stored on a computer readable medium (*Col. 37, Line 50- Col. 8, Line 6*).

While Oshikiri discloses a background noise period speech decoding device, method, and program that smoothes a gain value related to spectral envelope characteristics, Oshikiri does not

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specifically suggests applying smoothing to a feature parameters representing a spectral envelope. Hayata, however, recites a speech decoder featuring a means for smoothing a background noise period by smoothing a coefficient for spectral envelope characteristics (*Col. 5, Lines 21-54*).

Oshikiri and Hayata are analogous art because they are from a similar field of endeavor in smoothing processing in background noise periods. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to combine modify the teachings of Oshikiri with the filter coefficient smoothing taught by Hayata in order to better prevent abrupt noise variations in an output speech signal (*Hayata, Col. 3, Lines 41-45*).

With respect to **Claims 22 and 51**, Oshikiri discloses gain and synthesis filter parameters (*see Fig. 17*).

With respect to **Claim 28**, Oshikiri further discloses:

A coding device that determines whether the input signal is in a voice period or in a voice-less period for each frame and encodes the feature parameters of the input signals to output (*encoding means featuring a speech/noise classifier that encodes a classified signal, Col. 19, Lines 29-62*).

With respect to **Claims 74, 78-79, 83-84, and 88**, Hayata further discloses:

Smoothing in a subsequent period is performed even when a new feature parameter is not received (smoothing over time as voice inactivity continues, *Col. 7, Line 59- Col. 8, Line 4; and Col. 9, Lines 25-35*).

17. **Claim 16** is rejected under 35 U.S.C. 103(a) as being unpatentable over Oshikiri et al in view of Hayata and further in view of Jarvinen et al (*U.S. Patent: 5,960,389*).

With respect to **Claim 16**, Oshikiri in view of Hayata discloses the background noise decoder as applied to Claim 1. Oshikiri in view of Hayata does not specifically suggest that when a length of a voice period immediately before a first voice-less period is shorter than a predetermined length, a value of a feature parameter which is finally transmitted in a second voice-less period immediately before the voice period is used as an initial value of smoothing. Jarvinen, however recites utilizing a previous noise parameter for smoothing upon the occurrence of a short speech burst (*Col. 21, Lines 16-35; Col. 15, Lines 19-46; and Col. 2, Lines 28-43*).

Oshikiri, Hayata, and Jarvinen are analogous art because they are from a similar field of endeavor in speech coding systems utilizing spectral smoothing. Thus, it would have been obvious to one of ordinary skill in the art, at the time of invention, to modify the teachings of Oshikiri in view of Hayata with the concept of addressing a short speech burst taught by Jarvinen in order to prevent a speech burst from being misinterpreted as a background noise spike (*Jarvinen, Col. 14, Line 60- Col. 15, Line 3*).

18. **Claims 17-19** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayata in view of Jarvinen et al (*U.S. Patent: 5,960,389*).

With respect to **Claims 17-19**, Hayata discloses the background noise decoder as applied to Claims 2, 4, and 6. Hayata does not specifically suggest that when a length of a voice period immediately before a first voice-less period is shorter than a predetermined length, a value of a feature parameter which is finally transmitted in a second voice-less period immediately before the voice period is used as an initial value of smoothing. Jarvinen, however recites utilizing a

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previous noise parameter for smoothing upon the occurrence of a short speech burst (*Col. 21, Lines 16-35; Col. 15, Lines 19-46; and Col. 2, Lines 28-43*).

Hayata and Jarvinen are analogous art because they are from a similar field of endeavor in speech coding systems utilizing spectral smoothing. Thus, it would have been obvious to one of ordinary skill in the art, at the time of invention, to modify the teachings of Hayata with the concept of addressing a short speech burst taught by Jarvinen in order to prevent a speech burst from being misinterpreted as a background noise spike (*Jarvinen, Col. 14, Line 60- Col. 15, Line 3*).

19. **Claims 3, 5, 8-10, 23-25, 29-31, 36, 38, 41, 43, 52-54, 58-67, 69-71, and 85-87** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayata (*EP 0751490A2*) in view of Oshikiri et al (*U.S. Patent: 6,202,046*).

With respect to **Claim 58**, Hayata discloses the voice-less decoding method as applied to claim 35. Hayata does not specifically suggest method implementation as a computer readable medium storing a program executed by a computer. Oshikiri, however, discloses that a decoding operation is performed with by a computer reading/executing a readable medium storing a program (*Col. 37, Line 50- Col. 8, Line 6*).

Hayata and Oshikiri are analogous art because they are from a similar field of endeavor in smoothing processing in background noise periods. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to combine modify the teachings of Hayata with the method implementation as a computer readable medium storing a program

executed by a computer taught by Oshikiri in order to enable decoding processing to be performed using a general personal computer (*Oshikiri, Col. 38, Lines 3-6*).

With respect to **Claims 3, 36, and 59**, Hayata discloses the voice-less decoding method/system featuring a voice determination unit (*Fig. 1, Element 102*), as applied to claims 3, 35, and 58. Hayata does not specifically suggest a time period immediately following a voice/voice-less transition period in which feature parameters are decoded as speech before a background noise period is declared, however, Oshikiri further discloses passing features through smoothing processing during a hangover period and performing smoothing processing after a hangover period has elapsed for preventing speech to be mistaken as noise at the end of a speech period (*Col. 16, Lines 8-39; Col. 20, Lines 7-52; and Fig. 17*).

Claim 63 contains subject matter similar to claim 7, and thus, is rejected under similar rationale.

Claims 8, 41, and 64-65 contain subject matter similar to claims 3 and 7, and thus, is rejected under similar rationale.

With respect to **Claims 10, 43, and 66**, Oshikiri further recites:

The voice-less part decoding unit decodes the speech signal by using at least one of the received feature parameters as it is, in a first time period immediately after changing from the voice period to the voice-less period and in a second time period while the feature parameter satisfies a predetermined condition, and decodes the speech signal by using at least one smoothed feature parameter selected from the feature parameters after the first time period or the second time period is past (*passing features through smoothing processing during a hangover period and a subsequent detected speech period that follows a background noise period; and*

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performing smoothing processing hangover periods have elapsed, Col. 16, Lines 8-39; Col. 20, Lines 7-52; and Fig. 17).

Claims 23-25 contains subject matter similar to claim 22, and thus, is rejected for similar reasons. Also, Hayata discloses spectral envelope parameters, as applied to claim 2.

Claims 29-31 and 52-54 contain subject matter similar to claim 28, and thus, is rejected for similar reasons.

With respect to **Claims 85**, Hayata further discloses:

Smoothing in a subsequent period is performed even when a new feature parameter is not received (*smoothing over time as voice inactivity continues, Col. 7, Line 59- Col. 8, Line 4; and Col. 9, Lines 25-35*).

Claims 5 and 38 contain subject matter similar to Claim 3, and thus, is rejected under similar rationale.

Claim 9 contains subject matter similar to claim 3, and thus, is rejected under similar rationale.

Claim 60, 62, 67, and 70 contain subject matter similar to Claims 37, 39, 47, and 58, and thus, are rejected under similar rationale.

Claim 61 contains subject matter similar to claim 3, and thus, is rejected under similar rationale.

Claims 69 and 71 contain subject matter similar to claim 46, and thus, are rejected under similar rationale.

Claims 86-87 contain subject matter similar to claims 85, and thus, are rejected under similar rationale.

Conclusion

20. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

21. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: See PTO-892.

22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James S. Wozniak whose telephone number is (571) 272-7632. The examiner can normally be reached on M-Th, 7:30-5:00, F, 7:30-4, Off Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached at (571) 272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/James S. Wozniak/
Patent Examiner, Art Unit 2626